longitudinal resonances of the hollow chamber (1) to a sound spectrum to be attenuated, the microphone (10) being located directly in front of a membrane (8) of at least one loudspeaker (9) on a second end surface (6) the hollow chamber (1), and an amplifier (11) for inverting a microphone signal, with feedback of the inverted microphone signal to said loudspeaker (9) being in an amplified form in dependence on a sensor signal characteristic of sound in the sound-transmitting duct (4).

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15. (New) Controlled waveguide according to claim 14, wherein the opening (2) is provided with a sound-transmitting protective cover (5) made of one of a perforated sheet, a non-woven material and sheet materials.

16. (New) Controlled waveguide according to claim 14, wherein the hollow chamber (1) projects one of orthogonally and obliquely from the duct (4) or conforms to a straight or bent wall of the duct (4).

17. (New) Controlled waveguide according to claim 16, wherein a thermal insulating layer (13) is provided between a wall of the duct (4) and a wall of the hollow chamber when the hollow chamber (1) conforms to the wall of the duct (4).

18. (New) Controlled waveguide according to claim 14, wherein at least one wall of the hollow chamber (1) is provided with cooling elements (11) at least over part of the surface of the at least one wall.

19. (New) Controlled waveguide according to claim 14, wherein the hollow chamber (1) has a forced cooling apparatus (15) a thermal exchanger type or a Peltier element type therein.

20. (New) Controlled waveguide according to claim 14, wherein transverse partitioning is arranged to subdivide the hollow chamber (1) into tubes of different lengths.

21. (New) Controlled waveguide according to claim 14, wherein walls of said hollow chamber (1) are provided with a sound absorptive cladding (17) over at least a portion of the surface or their entire surface thereof.

22. (New) Controlled waveguide according to claim 14, wherein the sensor signal is comprised of temperature sensors, rotational speed sensors and measuring elements for the gas flow of burners and exhaust gas systems characteristic of the sound spectrum occurring in the duct (4).

23. (New) Controlled waveguide according to claim 14, wherein a plurality of the at least one duct (4) have side walls with a rectangular cross-section and a plurality of controlled waveguides are thereon.

24. (New) Controlled waveguide according to the claim 14, wherein the hollow chamber (1) configured as a circular and extends along a periphery of a duct (4).

25. (New) Controlled waveguide according to the claim 14, wherein a central slide is positioned inside the duct (4) configured rectangular or cylindrically so as to present an aerodynamically configuration or cylindrical duct (4).

26. (New) Controlled waveguide according to claim 14, wherein an acoustically effective membrane or plate communicates with said duct (4) in lieu of the sound-transmitting opening.

27. (New) Method for absorbing sound using a controlled acoustic waveguide, comprising:

connecting an elongate hollow chamber to a sound-transmitting duct via an opening on a first end surface of the hollow chamber,

locating a microphone directly in front of a loudspeaker on a speaker on a second end surface of the hollow chamber,

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detecting membrane vibrations of the loudspeaker via the microphone, inverting a microphone signal representative of the detected membrane vibrator, and amplifying and feeding both the inverted microphone signal to the loudspeaker in dependence on a signal characteristic of sound in the sound-transmitting duct. --

IN THE ABSTRACT:

Please substitute the new Abstract of the Disclosure submitted herewith on a separate page for the original Abstract presently in the application.

REMARKS

Entry of the amendments to the specification, claims and abstract before examination of the application is respectfully requested. These claims have been amended to remove multiple